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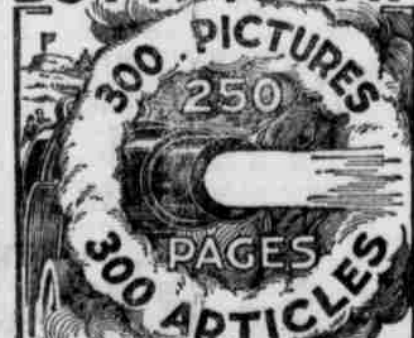
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STRAYED—from the enclosure of the undersigned on Saturday, Jan. 16th one white sow, weight about 500. Notify either Chas. King or Edward Carless.

Expositor liners pay, try one.

INTERNAL CATARRH

"Peruna Has Done Wonders For Me. I Was So Weak."



Mrs. M. P. Curry, 37, of Box 615, Petersburg, Ill., writes: "I have been troubled with internal catarrh since my girlhood, and was sick in bed three months. When I was able to get up I was so weak and thin I could hardly walk. What I ate disagreed with me. I had stomach and liver trouble, and my feet and limbs were swollen so I could scarcely drag around."

"I took Peruna and it has done wonders for me. My cure was a surprise to my friends for they never expected to see me well again. I just took two bottles of Peruna after doctoring for five months and growing worse all the time."

Continuous Headache.

Mrs. Esther M. Milner, Box 101, De Graff, Ohio, writes: "I was a terrible sufferer from internal catarrh, and had the headache continuously. I was not able to do my housework for myself and husband. You recommended Peruna. I took four bottles and was completely cured. I think Peruna a wonderful medicine and have recommended it to my friends."



Expositor liners pay, try one.

ATLANTIC AND PACIFIC OCEANS JOINED BY BELL TELEPHONE LINE

President Vail's Engineers Make It Possible For President Wilson to Send His Voice Across the Continent Instantly.

BELL, VAIL AND WATSON, CREATORS OF TELEPHONE, EXCHANGE GREETINGS OVER 4,400-MILE CIRCUIT

Public Officials of Cities on Two Coasts Take Part in Celebration and Congratulate One Another on New Bond Established Between East and West.

New York, January 25.—The completion of the long distance telephone line between New York and San Francisco was celebrated today. First, this city had speech with her California neighbor, 3,400 miles away. Then the wires that swing southward from New York brought Washington and San Francisco into telephonic touch. On down the coast to little Jekyll Island opposite Georgia, they carried the Golden Gate's greeting. To the North, Boston, the birthplace of the telephone, talked across the continent.

At the White House President Wilson spoke into the mouthpiece of his telephone and his voice was whirled across thirteen States to the shore of the Pacific.

President Wilson talked first to President Moore of the Panama-Pacific exposition. He said:

"I appeal to the imagination to speak across the continent. It is a fine omen for the exposition that the first thing it has done is to send its voice from sea to sea. I congratulate you on the fine prospects for a successful exposition. I am constantly hoping to take part in it after the adjournment of Congress. May I not send my greetings to the management and to all whose work has made it possible and has made it the great event it promises to be, and to convey my personal congratulations to you."

Clear as a bell came back President Moore's reply:

"We are looking forward to your coming here. I think you will be pleased with what we have done. I assure you, Mr. President, that you will never receive a welcome that will be more cordial and more enthusiastic."

President Wilson then talked to Mr. Thomas A. Watson, in San Francisco, with Dr. Alexander Graham Bell listening in on the line at New York. President Wilson said:

THEODORE N. VAIL.

"This greatest of telephone lines which today has been dedicated to the service of the public, must always be distinguished because through it the voice of the nation has for the first time in our history been transmitted from the seat of government at Washington westward thirty-six hundred miles to the shores of the Pacific. Over this line the voice of President Wilson was carried with magic speed across rivers and plains and mountains, instantly reaching San Francisco where in clear tones it spoke his message of congratulation to men of achievement."

"Unable to be present with us in person, Mr. Theodore N. Vail has nevertheless taken part in these ceremonies, in a manner that fills the mind with amazement. By using his wonderful Bell speech machine, he has been able to send his voice across the continent, and he has spoken through the length and breadth of our land to the state of California, forty-four hundred miles away, thus attaining the longest distance ever achieved by the voice of man."

"We are filled with grateful feelings that Alexander Graham Bell and Thomas A. Watson have today talked to each other over this historic line. Doctor Bell was the first to conceive of the true method and apparatus for transmitting speech electrically and Mr. Watson, following exactly the directions given to him by Doctor Bell, constructed with his own hands the first telephone. Bell was the first among men to talk by the electric telephone and Watson was the first to hear."

"There is before us an exact reproduction of the electric speaking telephone employed by Bell and Watson when they talked to each other by wire through this instrument. Doctor Bell has again talked to Mr. Watson, but this time how vast is the distance and how great the triumph."

"Of course he was not heard by any means as well as when he used our standard transmitter but well enough to be understood. We may be sure, and loud enough to excite a most pleasing sentiment. This original type of telephone talking over one of our modern systems spoke across the continent more distinctly than it ever did from one room to another over the busy lines of former days. Thus does this homey first instrument give testimony to the marvelous improvement made in its plant by the Bell company during these intense intervening years."

Mr. Carty escorted Dr. Bell to the strange looking transmitter and its inventor pressed his lips to the mouthpiece.

Bell and Watson Talk.

"Aho! Aho! Mr. Watson, are you there? Do you hear me?" asked Mr. Bell in New York.

"Yes, Mr. Bell, I hear you perfectly. Do you hear me well?" replied Mr. Watson at his end of the line in San Francisco.

"Yes, your voice is perfectly distinct," said Bell. "It is as clear as if you were here in New York instead of being more than 3,000 miles away. You remember, Mr. Watson, that evening, 23 years ago when we conversed through the telephone on a real line for the first time?"

"Yes, indeed," answered Watson, "that line was two miles long, running from Boston to Cambridge. You were overjoyed at the success of the experiment."

"We are talking over 3,400 miles as easily and clearly as we are talking over two miles 38 years ago," said Prof. Bell.

"The telephone men have certainly done wonderful things with your invention since that first outdoor test," said Mr. Watson. "We must not forget that the circuit we are talking over is really 6,800 miles long, as of course, the earth cannot be used for the return now as we used it then."

"I want to switch in another telephone and talk to you through that," said Dr. Bell, and suiting the action to the word he switched in a replica of his first telephone instrument. "I am now talking through an exact duplicate of the first telephone which was made in June, 1875," continued Dr. Bell, "can you hear me?"

"I hear perfectly, though less distinctly than with the other, of course," answered Mr. Watson.

Mr. Bell switched back to the standard transmitter and continued the conversation.

"What wonderful progress has been made by the Bell System since then to enable our voices to be transmitted over a circuit of 6,800 miles, without the least apparent distortion or weakening."

"Their work has been superb," declared Mr. Watson, "and superb also is the discipline of the organization that watches every inch of this long circuit to safeguard those feeble vibrations."

"All honor to the men who have rendered this great achievement possible," concluded Dr. Bell. "They have brought all the people of the United States within sound of one another's voices, and united them into one great brotherhood."

When the telephone had grown so that it could be taken outdoors on October 2, 1876, Dr. Bell had called "ahoy" across two miles of wire, just as he was calling now across three thousand, and it was not until some time later that "hello" was used.

Mayor Mitchell of New York and Mayor Ralph of San Francisco exchanged greetings.

Statement by Mr. Bethell.

In speaking of the new transcontinental line, U. N. Bethell, senior vice-president of the American Telephone and Telegraph Company, said:

"The completion of the transcontinental line is not only an epoch-making event in scientific development, but also the opening door to better conditions, commercial and social, throughout the nation. It means the breaking down of old barriers, by facilitating the exchange of information and ideas it brings the most remote points in the country closer together than were points lying within a single state a quarter of a century ago. It broadens mutual understanding and appreciation, and thus adds immeasurably to the progress of the art as developed by the advance of civilization. This is one of the romantic and inspiring steps in the progress of the art as developed by our great and always mutually helpful organization which embraces in its ranks more than 150,000 men and women. To the organization as a whole this event will have significance that cannot be overestimated. It will exert an influence that will not end with day, but go on working for better and greater results through years to come. In some way, directly or indirectly, every efficient man and woman in the organization has contributed something to the achievement, and therefore to a whole, the organization merits congratulations."

Greeting From Boston.

The following conversation took place between Thomas D. Lockwood in Boston, and Thomas B. Doolittle in San Francisco:

MR. LOCKWOOD speaking: "Good evening, Mr. Doolittle. I send you greetings from the birthplace of the telephone. It is worth while to have given the part of our lives to the telephone service, to realize that we have reached this notable day and are privileged to take part in it. It recalls the earlier days when by building the Boston and Lowell line, the Boston and Providence line, and the first experimental line between Boston and New York, this last supervised by yourself, the first step in the march of long distance telephone communication were taken."

That seems but yesterday, so fresh it is in my memory, and yet here we are celebrating the completion of the system to the Pacific coast, the crown and culmination, and that has been made possible by the combination and exercise of constant effort in engineering and invention, and constant profit by the teaching of experience."

MR. DOOLITTLE, IN SAN FRANCISCO, replying: "Glad to hear you, Mr. Lockwood, and to exchange greetings and congratulations. I reciprocate your expressions of satisfaction in the successful accomplishment of this great work. Speaking of and looking backward over the history of telephone progress, we can both say, as did one of ancient times, 'of which I saw and part of which I was.' But are you not going to invite me to dinner?"

MR. LOCKWOOD, replying: "Certainly, I am happy to invite you to dinner, but don't forget that times and conditions are changed. When in 1875 we opened the Lowell line, if you were in Lowell, you would have heard my invitation while I was giving it, and could have joined me inside of an hour, but now, where you are, while you will hear with your own ears my invitation three hours before I give it, you cannot reach the table until four or five days later."

Colonel Higginson Talks.

Col. Henry Higginson spoke to Mr. Thomas A. Watson in San Francisco and was followed by Mayor James M. Curley and Mr. Elmer J. Bliss, President of the Boston Chamber of Commerce.

Mr. P. L. Spaulding, President of the New England Telephone and Telegraph Company and George E. McFarland, President of the Pacific Telephone and Telegraph Company exchanged greetings.

In New York it was 4 o'clock when Doctor Bell sent his "ahoy" across the continent, and one of the first of the guests to speak after him asked the time in San Francisco. Each one looked at his watch as the answer came back: "One o'clock." This started a flurry of figuring. Those who know sound waves and the rate they travel said that it would take four hours for a man's voice, unaided, granted the possibility

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construction crews who do their duty, runs back over the space of many years. It brings you into experiment stations and testing rooms and laboratories. It covers innumerable experiments and improvements. Every step forward in the development of telephony has been over a gigantic scrap heap. Bell's original transmitter has seventy-three descendants. Fifty-three types and styles of transmitters have been introduced since 1877. Within ten years the Bell System spent for construction and reconstruction an amount more than equal to the present book value of the entire plant.

And what is true of transmitters and receivers is true of all that lies between the terminals of the transcontinental line. For it is in this field that the engineers had their real problems. To fill in the gap between Denver and the Coast with wires and poles was comparatively simple. The task they confronted was to birth at New York and working all along the line, make the multitudinous improvements necessary for a 3,400 mile talk. Transmitters, switchboards, metallic elements, hard-drawn copper wire and loading coils all had to be attuned to the transcontinental keynote. There's a list of the real achievement in what the engineers did with the loading coil. What the loading coil left the hands of the inventor it was as large as a keg, and the fine iron wires inside it cost a mint to make. To-day the loading coil is a few inches in size, and in the New York-San Francisco line there are 13,000 miles of that wire whose cost of manufacture is comparatively low.

Big Problems Solved.

For those in the Day Street offices there was striking proof that the problem of transmitting speech is not solved by any load-bearing transmitter in the replica of Bell's invention that lay before them. They realized as they looked at that instrument, crude in the light of all that has happened to transmitters since, what the engineers had accomplished to make it speak across the whole United States. They saw that it was not a question of more horse power, that the telephone

THOMAS A. WATSON.



Who made the first telephone 40 years ago according to Doctor Bell's specifications. Mr. Watson in San Francisco talked to Doctor Bell in New York over the transcontinental circuit.

engineer could not speed up dynamos or start more engines running to get what he was after. For telephony's motive power is the feeblest thing imaginable. It is a mere breath, and the engineer must preserve and carry to their destination practically unaided, scarcely the thousands of minute waves made in the air by the voice with all their separate shapes and individualities preserved. In speaking of his engineers' problems, President Vail said:

"The solution was found only in the cumulative effect of improvements, great and small, in telephone, transmitter, line, cable, switchboard and every other piece of apparatus or plant required in the transmission of speech."

Nine Million Telephones.

But proud as telephone engineers are of what they have accomplished, they will tell you that this transcontinental line is by no means the last word in the telephone's development in this country. The new line is the backbone of a network of 21,000,000 miles of wire woven round 9,000,000 telephone stations of the Bell System. The completion of this line is a mighty step forward toward that ideal of universal service preached by President Vail and his associates back in the Seventies. As they interpreted universal service, it meant that anyone anywhere could speak to anyone anywhere in this country by using his telephone receiver at the home. The line is still in the hands of the engineers. There is an amount of hard work to be done before it is opened to the public for commercial use, but when it is opened it will mean that a New York business man can talk to his San Francisco associate without leaving his desk.

The telephone in the United States has always set the pace for the rest of the world. It has "made in the U. S. A." stamped on its very soul.

Here are some figures in connection with the New York-San Francisco line for the lovers of statistics:

Length of line, 3,400 miles. Route: From San Francisco to Salt Lake City, 770 miles; from Salt Lake City to Denver, 550 miles; from Denver to Omaha, 535 miles; from Omaha to Chicago, 500 miles. At Chicago the line branches, one branch going to Pittsburgh, 515 miles, and then to New York, 290 miles from Pittsburgh. The other branch goes from Chicago to Buffalo, 603 miles, and then down to New York, 350 miles. There is a continuation of the line from Buffalo to Boston, 465 miles long. From Pittsburgh there is a continuation extending to Baltimore, 200 miles away, to Washington, 265 miles. Philadelphia is reached by a branch from the line extending from Pittsburgh to New York, connecting at Newtown Square.

The diameter of the hard-drawn copper wire of number 8 B. W. G. gauge used in the line is .165 inch. The total weight of one circuit consisting of two such wires is 1,430 tons.

There are 130,000 poles in the line.

DR. ALEXANDER GRAHAM BELL.



Inventor of the Telephone, Who Talked to Thomas Watson Over the New Transcontinental Line.

of such titanic lungs, to travel to San Francisco through the air. On the wires it takes less than one-fiftieth of a second. Electricity was driving Dr. Bell's "ahoy" at the rate of 56,000 miles per second. Sound, unaided, limps along in comparison, making only 1,160 feet per second.

Work Takes Two Years.

The work of constructing the transcontinental line took two years, but the history of the work of making the poles and wires, set and strung by the